The Miyabayashi et al. patent does not disclose that the material is "produced by activating a carbon material with an alkali". The examiner cites In re Brown, 173 USPQ 685, which states at page 688 with reference to product-by-process claims: "[w]e are therefore of the opinion that when the prior art discloses a product that reasonably appears to be identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable." [Emphasis added.]

It is respectfully submitted that in this case, it does not reasonably appear that the products are identical. The fact that the interlayer distance of the product of Example 1-1 of Miyabayashi et al. is just within the range 0.365 to 0.385 is not sufficient. The referenced patent states: "[t]he intensity of a diffraction curve for the same material was weak; d002 = 3.67." Applicants' Example 1 is clearly according to Applicants' claim 1. The diffraction curve for this material is labeled C in Figure 1 of this application. Notably, the diffraction curve has a very strong peak in the range d_{002} = 0.365 to 0.385 (curve C). The prior art is represented by curve B. The Applicants' specification demonstrates that there is a physical difference resulting from the product-by-process limitation recited in claim 1. This is not just an interesting fact, but ties in with the fact that the capacitance of the product of Example 1 of Applicants' specification and, therefore, claim 1 is superior to the capacitance of any other product set forth in Table 1 on page 17 of the specification. Hence, it does not reasonably appear that the carbon material of claim 1 is identical or only slightly different than the material of Miyabayashi et al. Example 1-1. Moreover, there is no suggestion in Miyabayashi et al. to modify the process of Example 1-1 to include the step of activating with an alkali. Miyabayashi et al. only disclose pyrolyzing with an oxidizing gas (water, vapor, or CO_2) alone or mixed with an inert gas.

The examiner has rejected claims 4 and 11 under 35 U.S.C. § 103(a) as being unpatentable over Miyabayashi et al. The examiner states:

> The reference teaches the carbon, but not a capacitor. However, use in a capacitor is taught in column 12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the carbon of Miyabayashi as a capacitor because doing so exploits its electrical properties. Concerning claim 11, holding plates in a confined structure is an obvious expedient to prevent ruining the battery during shipping. The effect 'limiting expansion' is deemed possessed by the fact that it is a confining structure.

Reconsideration is respectfully requested.

First of all, as explained with reference to claim 1, the reference does not teach carbon activated with an alkali. Concerning claims 4 and 11, Miyabayashi et al. only discloses embodiments for examples of usefulness in lithium batteries. The passing reference in column 12 to capacitors is conjecture, at best. Miyabayashi et al. discloses a range of inner layer distances: d002 = 3.41 Å (0.341 nm) to 3.70 Å (3.370 nm) selected as a preferred range for lithium batteries. The range set forth in Applicants' claims is the preferred range for EDLC's.

With regard to claim 11, the examiner speculates that "holding plates in a confined structure is an obvious expedient to prevent ruining the battery during shipping." The problem with this is that it is an argument not supported by the facts. The "dimension-limiting structure" of claim 11 is not for the simple purpose of preventing ruining of the capacitor during shipping. The purpose of the "dimension-limiting structure" is to limit expansion on application of voltage. As pointed out in Table 1, the expansion pressures are great (for Example 1, the expansion pressure is 7.5 kg/cm^2). A simple shipping cover could not be expected to confine such pressures. The examiner has cited no reference to support his argument that a "confined structure...to prevent ruining of the battery during shipping" would limit expansion upon application of voltage.

Claim 6 is allowable for the reason set forth for the claim from which it depends.

In view of the foregoing amendments and remarks, it is urged that this application is now in condition for allowance.

Respectfully submitted,

WEBB ZIESENHEIM LOGSDON
ORKIN & HANSON, P.C.

By _____

David C. Hanson, Reg. No. 23,024
Attorney for Applicants
700 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219-1818
Telephone: 412-471-8815
Facsimile: 412-471-4094
E-Mail: webblaw@webblaw.com

MARKED-UP VERSIONS OF CLAIMS 1, 4, AND 11

1. (Three Times Amended) A carbon material for an electric double layer capacitor, comprising:

crystallites of [graphite-like] carbon produced by activating a carbon material with an alkali, said crystallites having interlayer distances of 0.365 to 0.385 nm [and a specific surface area of less than about 400 m^2/g].

4. (Three Times Amended) An electric double layer capacitor having polarized plates immersed in an organic electrolyte, said electric double layer capacitor comprising:

said polarized plates being made of a carbon material comprising crystallites of [graphite-like] carbon produced by activating a carbon material with an alkali, said crystallites having interlayer distances of 0.365 to 0.385 nm [and a specific surface area of less than about 400 m^2/g].

11. (Three Times Amended) An electric double layer capacitor comprising:

an electrolyte consisting of a nonaqueous solvent;

polarized plates made of a carbon material activated with an alkali having interlayer distances d_{002} of 0.365 to 0.385 nm [and a specific surface area of less than about 400 m^2/g]; and

a dimension-limiting structure in which said electrolyte and said plates are held, said dimension-limiting structure acting to limit expansion of said plates on application of a voltage.